Small Gas Piping Systems In the State of Washington

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First Consultant Report

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EXECUTIVE SUMMARY

The State of Washington Utilities and Transportation Commission (UTC) has requested Oleksa and Associates to perform a study to identify risks of small gas piping systems, identify how many there are, and identify the range of regulatory responses for those systems. This first report covers master meter and other small gas piping systems that have buried piping, without regard for whether the systems are currently covered by regulations or industry codes, and either serve more than one building or have piping in locations accessible to the public.

There are serious problems with the current definition of "master meter." A piping system is a "master meter" only if gas is resold – this is not an indicator of risk. Many piping systems (e.g., prison complexes, fairgrounds, hospital complexes, industrial piping systems) may not be "master meters," may have high risk situations, but are not covered by any regulations or industry codes that cover operation and maintenance. The risk level of small gas piping systems is at least as high as that for larger piping systems, and may in fact be higher.

Safety could be enhanced by putting simple, practical requirements in place. These requirements could be equally applicable to master meter systems or to non-master meter systems. New or different regulations would be appropriate in most cases, but an educational program might be more appropriate for industrial piping systems.

Proposed rules should be simple and based on common sense. The full set of regulations found in 49 CFR Part 192 are not appropriate or effective for small gas piping systems. An integrity management program would not be appropriate. A mini-emergency plan should be required, along with emergency training. A mini-public awareness plan should be required, including liaison with the local Fire Department. An annual report should be required so that the UTC can begin assembling data that might identify trends or problems.

A sketch or drawing of the piping system showing valve locations should be readily available to fire officials in an emergency. Records should be required. Pipe location should be clearly marked in the field to help prevent accidental dig-ins.

Periodic inspections should be required. Systems that have cathodic protection should be inspected annually, while plastic systems should be inspected once every five years. Inspections would include leak detection, corrosion control (for steel piping), valve inspections, pressure regulator and overpressure protection device inspections, a simple odor check, and a check to ensure that field pipe markings are intact. These inspections should be performed by a qualified person. However, the small gas pipeline system operate need not have its own Operator Qualification program but instead could seek qualification or a qualified person through the gas utility or contractor.

A simple one-page annual report should be required.

The findings of this report will be subject to comment and feedback through a stakeholder process.

1. BACKGROUND

The pipeline safety program of the Washington Utilities and Transportation Commission (UTC) is seeking information about the risks of small gas pipeline systems and possible safety measures that could be taken to mitigate those risks. The program has contracted with Paul E. Oleksa of the pipeline safety firm Oleksa and Associates to conduct the study.

1.1 Purpose of the Study

The following is taken from the UTC web site.

> *The UTC is the state agency with the responsibility for enforcing federal and state safety laws on intrastate gas pipeline systems. Currently, the commission's intrastate pipeline safety program is involved with inspecting the state's seven local natural gas distribution systems and the seven gas pipelines owned by large industrial gas customers. The commission also inspects roughly 16 small gas pipeline systems which meet the federal definition of "master meter" systems. However, in recent years, the UTC pipeline safety program has found that not all small gas pipeline systems which could potentially pose a public safety risk fit into the federal definition of master meter systems. Furthermore, some that do fit into the definition may not pose a risk sufficient to require the current level of regulation.*

The purpose of the study is stated on the UTC web site as follows.

> *The purpose of the study is to:*
>
> 1. *Identify system characteristics that pose risks warranting a regulatory or policy response.*
> 2. *Identify the number and types of small gas systems operating in Washington.*
> 3. *Identify the range of regulatory/policy responses to these systems.*
> 4. *Develop recommendations for regulations and possible legislation comprehensively addressing small gas systems.*

1.2 Included Tasks

The UTC web site provides the following directions to the study contractor.

Tasks will include:

1. Review of records, state and national studies, other publications, as well as available history and data, and comments from the industry and the public.
2. Assist UTC staff in preparing materials for and participate in public workshops/discussions regarding small gas systems.
3. Identify the characteristics and relative risk of small gas systems. Obtain feedback from stakeholders on conclusions.
4. Assist UTC staff in developing range of regulatory and policy options.
5. Prepare a written report of study findings, including a ranking of the relative risk of small gas system configurations and an outline of policy options.
6. Review UTC staff recommendations on a regulatory scheme for small gas systems and provide comments and feedback.

2. SCOPE OF THE STUDY

It may appear at first that the scope of the report would be obvious, but lengthy discussions with potential stakeholders indicated that this was not the case. Furthermore, it became evident that establishing the scope would significantly affect the results of the report and ultimately the study. Establishing the scope, therefore, is a critical step in conducting the study.

This report is limited to piping systems that include the following.

(a) Natural gas, propane, or landfill gas;

(b) Below ground piping; and

(c) One or both of the following.
  (1) Gas supply to more than one building, or
  (2) Piping that is located on property open to public access.

This report includes all such piping systems without regard to whether a particular piping system is covered by any publicly-available standards, or whether it is covered by any governmental rules or regulations.

This report does not include agricultural piping or on-site landfill gas piping.

The analyses that led to this conclusion are presented below in this Section and will be covered again at a future stakeholder workshop.

2.1 Type of Gas

The scope of this study did not include industrial gases or gases other than natural gas, propane, or landfill gas.

2.2 Above-Ground Piping

Piping systems consisting of above-ground piping were not included within the study for the following reasons.

(a) Above-ground piping inherently has less risk than below-ground piping. This is true because of the following reasons.

  (1) Above-ground piping generally does not fail from electrolytic corrosion. Cathodic protection is not required.

  (2) Above-ground piping is clearly visible. It is therefore less likely to be accidentally damaged by construction activities.

  (3) Gas leaking from an above-ground pipe is not as likely to migrate to a remote location.

(b) Above-ground piping, other than master meter systems, exists in most of the buildings within the state. Thus there are a huge number of such piping systems.

(c) To include above-ground piping in this study would result in drawing time and resources away from other piping systems with higher risk.

Therefore, since the underground piping systems have higher risk of leak or failure, it is reasonable to focus on those piping systems at this time.

2.3 Existence of Rules, Regulations, or Standards

Individuals associated with piping systems tend to think about such systems with respect to which set of rules, regulations, or standards apply to the particular piping system. To meet the purpose "*Identify system characteristics that pose risks …* ", it was decided that the initial part of the study would be performed without regard to which rules, regulations, or standards apply to a given piping system. Piping systems would be studied simply in terms of risk.

After all underground piping systems have been identified, then the applicable rules, regulations, or standards could be reviewed to determine whether "*… a regulatory or policy response …*" is warranted.

2.4 Number of Buildings Served

There is potentially a very large number of small gas piping systems supplying gas to only one building. For example, if a customer meter for a natural gas utility is located near the street, the gas typically is piped underground to the customer building. This piping is known as a "customer buried piping", or "yard line."

It was decided to limit the study to piping systems supplying gas to more than one building for the following reasons.

(a) The risk of leaks or failures of many of these piping systems (e.g., "customer buried piping", or "yard line") is low because the systems are covered by Federal pipeline safety standards (49 CFR Part 192, §192.16)

(b) There is a large number of such piping systems.

(c) Therefore, it is reasonable, at this time, to focus on piping systems supplying gas to more than one building.

2.5 Public Access

Because of the exposure to the public, piping systems that are located on property other than that owned by the operator or which allow public access are included within the scope of the study, regardless of the number of buildings served.

2.6 Exceptions

The following piping systems are excepted from this study. The risk related to this piping is minimal compared to other piping systems. The piping is generally remote from population centers, is generally not under pavement, and leaks, if they occur, are likely to vent harmlessly to the atmosphere.

(a) Agricultural piping (e.g., a gas pipe running to a barn), and

(b) Landfill gas piping systems up to the point where they may become jurisdictional to the regulations in 49 CFR Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards." Generally, landfill gas piping systems become jurisdictional when they transport gas off site.

3. MASTER METER SYSTEMS

3.1 Definition

Master meter systems are defined in the Federal pipeline safety standards (49 CFR Part 191, §191.3) as follows.

> *Master Meter System* means a pipeline system for distributing gas within, but not limited to, a definable area, such as a mobile home park, housing project, or apartment complex, where the operator purchases metered gas from an outside source for resale through a gas distribution pipeline system. The gas distribution pipeline system supplies the ultimate consumer who either purchases the gas directly through a meter or by other means, such as by rents.

Washington Administrative Code also reference this definition in defining master meters (WAC 480-93-005 (16)).

3.2 Problems with the Definition

3.2.1 Resale of Gas

Note that the Federal definition of master meter requires that the gas be resold. Whether or not gas is resold may not be easily ascertainable.

Consider the examples in Appendix A. From these examples, it is clear that in many cases, whether a piping system is classified as a master meter depends on financial or accounting arrangements, not on pipeline safety issues. Inspectors are expert in pipeline safety matters, not financial or accounting arrangements. It may be difficult for inspectors in the field to have access to sufficient information to make accurate determinations. Additionally, the financial or accounting arrangements that an operator makes may change from year to year.

3.2.2 Many Piping Systems Not Included

(a) Using the examples and logic presented in Appendix A, it can be seen that many small piping systems are not included in the definition of "master meter." Types of small gas systems are presented in Appendix B. The following types of small gas piping systems may not fall under the definition of "master meter":

(1) Prison complexes

(2) Hospital complexes

(3) Nursing home complexes

(4) Elementary and secondary school complexes (campuses)

(5) College and university campuses

(6) Some apartment complexes

(7) Greenhouse complexes

(8) Industrial companies with multiple buildings

(b) These piping systems, however, may have some or all of the following characteristics.

(1) The piping systems may be extensive,

(2) the piping may be under pavement or hard-packed surfaces causing leaking gas to migrate,

(3) leaks could affect large numbers of people.

(4) Potential leaks could affect people who are confined, are of impaired mobility, or would be difficult to evacuate.

3.2.3 Classification can Change from Year to Year

The classification of a piping system can change from year to year as a result of actions that UTC would not be aware of, and that UTC would have no control over. Examples of such changes are as follows.

(a) A change in financial or accounting arrangements (e.g., a university arranges for a commercial restaurant to occupy part of a student union building, or a university with a commercial restaurant on campus decides to perform the food service function in-house); or

(b) The addition or removal of a single gas appliance (e.g., a factory sublets part of its facility to another company, and the lessee installs or removes an overhead gas heater).

These changes can take place without the knowledge of the UTC, and the time spent pursuing these details takes away from field inspection time.

3.2.4 Piping Systems Included in Master Meter Definition But Not in UTC Study

Some small gas piping systems meet the definition of “master meter”, but are not included in the UTC small gas piping study. An example of this is a system that consists entirely of piping that is not buried (e.g., piping in some high-rise apartment buildings). This type of piping system generally has lower level of risk than piping that is buried and is generally constructed in accordance with the International Fuel Gas Code. Two big risk factors with buried pipe are corrosion and being damaged by other construction. Piping in buildings generally experiences much less corrosion damage than buried piping. It is less subject to being damaged by other construction because it is generally visible and because mechanized excavation equipment is not likely to be used nearby. The exclusion of above-ground master meter systems from the study may be a discussion point at stakeholder workshops.

4. TYPES OF SMALL GAS PIPING SYSTEMS

For types of small gas piping systems in Washington, see Appendix B.

5. MEETINGS AND SITE INSPECTIONS

(a) Several site inspections were performed at a variety of locations throughout the state. These inspections were performed during the following time periods.

(1) April 24 – 25, 2006, Olympia and Seattle areas.
(2) June 13 – 15, 2006, Spokane area.
(3) July 10 – 12, 2006, western Washington.

(b) Meetings were held with the following.

(1) Washington UTC Pipeline Safety Division.
(2) Gas utility companies.
(3) Northwest Industrial Gas Users.
(4) Northwest Propane Gas Association.

(c) Piping systems in the following types of facilities were inspected.

(1) Prisons.
(2) Fairgrounds.
(3) Airports.
(4) Public schools.
(5) Private schools.
(6) Colleges.
(7) Housing complexes.
(8) Mobile home parks.
(9) Greenhouse complexes.
(10) Hospital and medical complexes.
(11) Industrial facilities.

6. LITERATURE REVIEW

The following material was reviewed.

(a) "An Analysis of Natural Gas Master Meter Systems (Definition & Program) from a Federal Perspective", prepared by the Systems & Applied Sciences Corporation for the U.S. Department of Transportation, June, 1979.

(b) "Assessment of the Need for an Improved Inspection Program for Master Meter Systems", a report of the Secretary of Transportation to the Congress, prepared by the Volpe National Transportation Systems Center (Volpe Center), January 2002.

(c) "Integrity Management for Gas Distribution", Report of Phase 1 Investigations, prepared by joint work / study groups including representatives of: Stakeholder public, Gas distribution pipeline industry, State pipeline safety representatives, and Pipeline and Hazardous Materials Safety Administration, December 2005.

(d) 49 CFR Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards.

(e) State Washington Administrative Code Chapter 480-90

(f) International Code Council and American Gas Association "International Fuel Gas Code."

(g) Washington pipeline safety program website (www.wutc.wa.gov/pipeline)

7. RISK

Risk is the result of the probability of an event happening multiplied by the consequence of that event. It may be characterized by the following equation.

RISK = (Probability) x (Consequence)

There is insufficient data available to make a precise numerical determination of risk related to small gas piping systems. However, there is enough information available to make some very helpful generalizations.

(a) Risk is not related to how a piping system is classified. For example, if a small gas piping system is a master meter system, and if the classification of that master meter system is changed the following year due to a change in financial arrangements with a food service provider, the risk related to the small gas piping system remains the same. Similarly, if a section of pipe is part of a master meter system, and an identical section of pipe is part of a non-master meter industrial complex, the two identical sections of pipe would have the same risk level even though their classification is different.

(b) The risk level of a small gas piping system, on a per foot basis, cannot be expected to be less than that of a large gas piping system. The 2002 report "Assessment of the Need for an Improved Inspection Program for Master Meter Systems" states the following on page 51.

> *In the absence of good data, the probability of an accident on a master meter system can be expected to be greater than or equal to the probability of an accident on other gas distribution systems. … the consequences of an accident on a master meter system will be no less than those of an accident on some other gas distribution system. … Based on the foregoing, it would appear that the risk of an accident on a master meter system will be no less than that of an accident on other gas distribution systems, and, in fact, it may be greater.*

(c) The risk level of small gas piping systems that are not master meters can be expected to be not less, and perhaps higher, than that of master meter systems. This is because there is no regulatory oversight of non-master

meter systems, and there are no Codes or governmental rules or regulations that apply to the operation and maintenance of those systems. There is no effective standard of performance.

(d) Overall risk level can be expected to be lower if there were some sort of oversight, or some sort of program to help ensure that the piping systems are constructed properly and that they are operated and maintained in accordance with accepted standards.

(e) Small gas piping systems are often operated and maintained by personnel who have many other responsibilities, and thus may not have the level of expertise for piping systems that can be expected in a large gas utility. An attempt to impose all the requirements of CFR Part 192 on small gas piping systems may well overwhelm many operators with the result that little or nothing would be done, and the overall risk level would increase. It would be preferable to have simplified regulations, using a common sense approach, specifically addressed to small gas piping systems. If the simplified regulations are followed, the overall risk level would decrease.

8. IDENTIFICATION OF SMALL GAS PIPING SYSTEMS

A major difficulty with reducing the risk level of small gas piping systems is that there is no good way at the present time to identify where these systems are or who operates them. The problem of identification has been discussed for years, but there has been no good solution so far. Many states have requested gas utilities to help identify master meter systems. Much good work has been done, but this effort has ignored small gas piping systems that are not master meters.

With all this in mind, it appears that a reasonable approach might be to begin a program knowing that it is very possible that many small gas piping systems have not been identified, and to add to the list of identified systems on a continuing basis as new information is obtained.

Information might be obtained by the following.

(a) Input from gas utility companies (this has already been done in Washington).

(b) Cooperation and input from industry associations.

(c) Cooperation from local fire officials who perform inspections of commercial or industrial properties. The fire officials could ask if buried gas piping is present as a part of these inspections.

9. RANGE OF REGULATORY / POLICY RESPONSES

9.1 Applicability of Minimum Federal Safety Standards

The regulations in 49 CFR Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards are Federal regulations. The entire set of regulations in Part 192 applies to master meter systems, except where master meter systems are specifically excluded or where the regulations specifically apply only to transmission pipelines.

The 49 CFR Part 192 regulations do not apply to many small gas piping systems. Often, the reason that the regulations do not apply to a given small gas piping system has nothing to do with pipeline safety, but is based on financial arrangements regarding the resale of gas. See Paragraph 3.2.2 for more details.

The State of Washington has no authority to change the Federal regulations or to change their applicability. However, if the Federal regulations do not effectively provide for pipeline safety, they can be changed to be more effective. As experience is gained with small gas pipeline systems in Washington, the Federal Office of Pipeline Safety may be able to use that experience to modify the Part 192 regulations to better address the pipeline safety issues of small gas pipeline systems.

The State of Washington may, if it desires, promulgate rules or regulations that are more stringent than the Federal regulations.

9.2 Areas of Concern for Small Gas Piping Systems

For pipeline safety purposes, the primary areas of interest for small gas piping systems are as follows.

(a) Construction in accordance with either the 49 CFR Part 192 regulations or the International Fuel Gas Code, as applicable.
(b) Awareness of hazards with pits and vaults.
(c) Knowing the location of the piping (e.g., sketch or drawing that could be used by the Fire Department during an emergency).
(d) Knowing the size and type of pipe and its connections (e.g., records).
(e) Knowing valve information (e.g., size, type, manufacturer, location).
(f) Field marking the pipeline system.
(g) Periodic leak detection.
(h) Corrosion control, if the piping is steel.
(i) Periodic valve inspection and partial operation.
(j) Periodic inspection of pressure regulators and overpressure protection equipment (if any are on the system).
(k) Periodic odor checks.
(l) Mini emergency plan.
(m) Mini public awareness plan.

(n) External damage (e.g., membership in one-call system, if applicable).
(o) Records of inspections – retain for 5 years.

9.3 Options for Addressing Areas of Concern

There are three options that may address the areas of concern.

(a) The first option is to continue with the status quo. There are serious flaws with this option that would have a significant effect on pipeline safety.
  (1) This option addresses only systems defined as "master meters", and ignores any other small gas piping systems.
  (2) Some small gas piping systems would be regulated one year, and not in another year due to changes in financial arrangements.
  (3) Significant pipeline safety exposures would be ignored.

(b) The second option is to establish regulations, and follow up with periodic inspections. Regulations need not include all the material in 49 CFR Part 192 but rather only those areas of concern for small gas piping systems (see Section 9.2 above). It would be better for pipeline safety to conscientiously address a small number of areas of concern than to overwhelm owners or operators of small gas systems with a large set of regulations, much of which do not apply. If an owner or operator is overwhelmed, there may be no positive response at all, and safety would suffer.

The concept of separate regulations for master meter systems is consistent with one of the findings of the 1979 Report, "An Analysis of Natural Gas Master Meter Systems (Definition & Program) from a Federal Perspective." The following is from Section 7.3 of that report.

> *The data indicated that separate recognition of master meter systems in the gas pipeline safety regulations and, possibly, law may be appropriate. For instance:*
>
> - *the nature and degree of safety hazard in master meter systems is different than that in large utility gas pipeline facilities,*
> - *the technical expertise and administrative capacity to ensure a safety program are not available to master meter system operators as they are to the utilities,*
> - *communication with master meter system owners and operators will be much more difficult than it is with utilities.*

(c) The third option is to establish an ongoing education program designed to reach the targeted audience.

(1) The education program could include periodic seminars, open to all stakeholders.

(2) This effort could be coordinated with local and State fire officials to raise awareness. Fire officials could be given access to gas line location schematics (see Paragraph 8.2(c) above). Fire officials could encourage participation in the educational program.

9.4 Proposed Rules

Proposed UTC rules would be a much abbreviated version of the Part 192 regulations, covering only the areas of concern listed in Section 8.2. The new rules should not simply eliminate sections of the 49 CFR Part 192 regulations that are inappropriate for small gas piping systems, but should abbreviate those sections that are appropriate. For example, regarding odorization, the new rules may simply require an annual sniff test. This simplification would be appropriate because the supplying utility would still be responsible for the full odorization requirements of §192.625, and the small gas piping system sniff test would merely be a confirmation that the gas is odorized. These rules would be applicable to Items 6, 7, and 8 of the table in Appendix B. These rules could be summarized as follows.

(a) Engineering and Construction.

(1) Construction of new piping should be in accordance with the International Fuel Gas Code.

(2) Deep pits or vaults, particularly those with manhole-type entries, should not be installed unless there is no practicable alternative. Often valves can be located above ground or buried with a valve box that can be operated from above ground.

(3) A sketch or drawing of the piping system, showing valve locations, should be available in a readily-accessible location. A copy of this sketch or drawing should be included with the mini emergency plan.

(4) Records should be available (this may not be possible on piping systems constructed prior to the effective date of the rule) on the following.

(A) Size and type of pipe, including pipe specifications.
(B) Type of connections on the pipeline.
(C) Size, type, and manufacturer of valves, including model number if available.

(b) Field.

(1) The pipe location should be marked in the field. The location should be marked so that all branch connections and changes in direction are visible. Some acceptable methods to use for field marking include the following.

(A) Yellow paint on pavement or buildings.
(B) Standard gas pipeline marker meeting the requirements of 49 CFR Part 192, §192.707(d).
(C) Commercial markers placed in pavement or ground.

(2) A copy of the mini emergency plan, including a copy of the sketch or map of the pipeline system should be located in the security office at the entrance to the facility (if one exists). This information would be available to fire and other emergency responders.

(c) Periodic Inspections

(1) Leak detection, using a leak detection instrument;

(2) Corrosion control inspections, if the piping is metal;

(3) Valve inspection and partial operation;

(4) Inspection of pressure regulators and overpressure protection equipment (if any are on the system);

(5) Odor check (a sniff test is acceptable); and

(6) Ensure field marking is intact.

(7) Records of these inspections should be retained for 5 years.

Periodic inspections of cathodically protected piping systems should be performed annually (if a rectifier is used, it should be checked every two months), and for buried plastic every 5 years. This would result in some inspections (e.g., a valve inspection, if the valve is not necessary for the safe operation of the system) being performed more frequently than required by the 49 CFR Part 192 regulations, and some valves (e.g., a valve inspection, if the valve is necessary for the safe operation of the system) being performed less frequently (see 49 CFR §192.747). However, these additional inspections are easy-to-do, low-cost items. If inspections are going to be performed, it would be appropriate and practical to perform all the inspections at the same time. The annual inspections for cathodically protected systems are necessary due to the need for pipe-to-soil tests on the cathodic protection system. The five-year inspections on plastic systems are necessitated by the need for leak surveys. The frequency of inspections may be a topic of discussion in stakeholder meetings.

(d) Mini emergency plan

The mini emergency plan should be a one-page or two-page document, if possible. It should include the following.

(1) Location of gas meter, regulator, and wrench for the emergency shut off valve. If a key is required to access the wrench or the shut off valve, include the location of the key.
(2) Name and emergency telephone number of the gas supplier.
(3) Emergency telephone numbers for fire, police, and ambulance.
(4) Picture of the shut-of valve, if practicable.

(e) Mini public awareness plan.

The mini-public awareness plan should include the following.

(1) Name and telephone number of fire official contacted, along with the date last contacted (contact should be made at least once each calendar year).
(2) Name and telephone number of other officials contacted, along with the date last contacted.
(3) Communication to personnel affected. This could be a periodic (e.g., annual) article in a newsletter, an item on a bulletin board, part of an information kit for new tenants or employees, or part of new employee training.

(f) Annual Report.

An annual report should be required so that UTC can begin tracking information and trends. Preferably this would be an electronic reporting system, requiring a minimum of time either on the part of the small gas piping system or on the part of the UTC staff. If precise information is not known, a reasonable estimate should be made. The report should include the following information.

(1) Is there underground piping?
(4) Type of gas in the pipe?
(5) Total length of underground piping (in feet)(best approximation)
(6) Material:
    (A) Carbon steel
    (B) Stainless steel
    (C) Polyethylene plastic
    (D) Other plastic
    (E) Copper
    (F) Other
(7) If carbon steel, is it cathodically protected?
(8) If there is cathodic protection are anodes or rectifiers used?
(9) Original installation date (may be estimated).
(10) Is a valve(s) readily accessible to shut off the flow in an emergency?
(11) Date of last periodic inspection.
    (A) Leak detection performed?
    (B) Number of leaks found.

(C) Disposition of each leak (may be summarized).
(D) Valves inspected and partially operated?
(E) Any valves that required scheduled repair or replacement?
(F) If buried steel pipe, were pipe-to-soil tests taken?
(G) If rectifier, was it inspected every two months?
(H) Any corrosion control items that required scheduled repair?
(I) Was odor readily apparent?
(J) If pressure regulators or overpressure protection equipment, were they inspected?
(K) Any repairs that required scheduling?
(L) Are pipeline markers intact?

(12) Was at least one emergency plan training exercise conducted? (A table-top discussion is acceptable.)
(13) Was liaison performed with the Fire Department personnel?

(g) Operator Qualification Requirements.

(1) Personnel performing the following tasks should meet the Operator Qualification (OQ) requirements for the applicable task found in the 49 CFR Part 192 regulations.
(A) Joining plastic pipe.
(B) Performing required annual inspections.

(2) A person should be considered OQ-qualified for a particular task if the person is able to provide documentation showing that the person has been OQ-qualified by any entity, such as the person's employer, a utility, or another contractor.

(3) The owner or operator of a small gas piping system should retain records of persons performing the tasks in Paragraph (1) above. These records should be retained for 5 years.

The Operator Qualification requirements may be a topic of discussion at the stakeholder workshops.

9.5 Integrity Management Plans

The December 2005 report "Integrity Management for Gas Distribution", Attachment B, page 3, Finding 4/5-4, states the following.

> Part 192 needs a regulation that specifically requires a distribution integrity management program … .

Although a formal, written integrity management program may be appropriate for a large gas utility, such a requirement would not be applicable to small gas piping systems. Rules or regulations for small gas piping systems should be simple, common-sense requirements that are easily understood. Prescriptive rules are best for these systems. An integrity management system would be a great burden

for operators of small gas piping systems, and there does not appear to be a need for such an approach.

9.6 State Waiver from Federal Regulations

If the State of Washington adopts rules as summarized in Section 9.4 above, it would be appropriate, from a pipeline safety perspective, to apply those rules to master meter systems which are currently subject to the full 49 CFR Part 192 regulations. This action would increase the level of pipeline safety by focusing on the areas of concern that are specifically applicable to master meter systems. It would ease the burden on both the owners and operators of the master meter systems and on the inspectors because it would eliminate a great deal of material that is not applicable. Thus this action would streamline the applicable rules and regulations and increase the level of public safety.

Presently, the State of Washington is obligated to enforce the full 49 CFR Part 192 regulations on all jurisdictional master meter systems. However, there is provision to apply for a waiver. A waiver could be requested to substitute the Washington rules for Part 192 for master meter systems in the State of Washington. If the Federal Office of Pipeline Safety approves such a waiver, the State of Washington would be free to enforce its own rules on the master meter systems.

9.7 Industrial Facilities

Industrial small gas pipeline systems are exposed to the same hazards as other small gas pipeline systems.

In general, however, industrial facilities are unique in that they generally have trained maintenance personnel, they are inspected by fire officials, they may be inspected by industrial insurance companies, and they often belong to industry organizations that can assist in pipeline safety activities.

Because of these unique conditions, industrial small gas piping systems could be administered through an ongoing education process rather than through rules. The following might be considered for this education process.

(a) A page on the UTC web site devoted to industrial small gas piping systems.

(b) An annual seminar, to be paid for by the attendees. The seminar might include presentations or a panel of industry representatives to address specific topics, such as reviewing an emergency plan with the local fire officials. Each year, a different topic might be emphasized. The seminar could be a one-day event, say from 10 to 3, so that many of the attendees would be able to attend without an overnight stay.

(c) Coordination of the education program with industry organizations.

(d) Annually informing industrial insurance companies of the program's progress, inviting them to the annual seminar, and providing them an opportunity to make a presentation at the seminar.

(e) Annually informing the State Fire Marshal of the program's progress, inviting him or her to the annual seminar, and providing an opportunity to make a presentation at the seminar.

(f) An annual direct-mail letter to the industrial small gas pipeline systems, informing them of the program's progress and inviting them to the annual seminar.

(g) Inviting a representative of either the Federal Office of Pipeline Safety or the Transportation Safety Institute training center to make a presentation.

(h) Inviting a representative of the quality assurance community (e.g., six sigma) to make a presentation, particularly if the speaker is knowledgeable about pipeline safety issues. One of the large industries or one of the natural gas utilities may have such a person. This could be an opportunity to point out how the themes in pipeline safety and quality assurance complement each other, and in pointing out the economic savings of "doing things right."

10. APPENDICES

List of Appendices	
Appendix Number	Title
Appendix A	Examples of Master Meter Systems
Appendix B	Types of Small Gas Piping Systems in Washington

Appendix A

EXAMPLES OF SMALL GAS PIPELINE SYSTEMS			
Item	**System Description**	**Explanation**	**Master Meter (Y / N)** (See note below)
1	An apartment complex purchases gas from a gas utility, then transports the gas through an underground piping network to several buildings. The gas fuels boilers, which provide heat to the apartment units. There are no gas appliances in the apartment units.	Gas is supplied to the boilers, which are owned by the apartment complex. The apartment owner supplies heat to the apartment unit, but does not supply gas. Therefore there is no resale of gas.	N
2	In the apartment complex in item 1, a gas range is installed in one of the apartment units. There is no gas meter for the apartment unit, and the tenant does not pay a separate gas bill.	Gas is supplied to the tenant. Although the tenant does not pay a separate gas bill, the cost of the gas is included within the rent paid by the tenant.	Y
3	In the apartment complex in item 1, a gas furnace and range is installed in each apartment unit. There is a gas meter for each apartment unit, but the tenants do not pay a separate gas bill.	The gas meters at each apartment unit (sub-meters) are used by the apartment complex for tracking and control purposes. The tenants pay for the gas through their rents.	Y
4	A university purchases gas from a gas utility, then transports the gas through an underground piping network to several buildings. The gas fuels boilers, which provide heat to the buildings.	The gas is used by the university. It is not resold. The students do not purchase gas.	N
5	In the university in item 4, gas is also supplied to chemistry labs where it is used by students in Bunsen burners and in ovens.	Although there may be differences of opinion regarding this, it is believed that the use of gas by a student in a lab does not constitute resale of gas to the student.	N
6	In the university in item 4, gas is also supplied to restaurants operated by outside companies in some of the buildings.	Gas is resold to the restaurants, whether the restaurant pays a separate gas bill, or whether the cost of the gas is included in their rent or other fees.	Y

EXAMPLES OF SMALL GAS PIPELINE SYSTEMS			
Item	**System Description**	**Explanation**	**Master Meter (Y / N)** (See note below)
7	A manufacturing company purchases gas from a utility, then transports the gas through an underground piping network to several buildings. All the buildings are part of the manufacturing company complex. Gas is used for heat, for various appliances, and for the manufacturing process. The company operates a cafeteria in one building for the employees, and the cafeteria uses gas appliances.	All the gas is used by the manufacturing company.	N
8	The company in item 7 leases a portion of one of its buildings to another company. Heat is provided to the lessee company, but the lessee company does not operate any gas appliances.	All the gas equipment and appliances are controlled by the lessor company.	N
9	The lessee company in item 8 installs a gas hot water heater.	Gas for the lessee company's hot water heater is supplied by the lessor company. The piping system operated by the lessor company is now a master meter system.	Y
10	The manufacturing company in item 7 allows a food service company to take over its company cafeteria, which uses gas appliances.	Gas for the food service company is provided by the manufacturing company. The piping system operated by the manufacturing company is now a master meter system.	Y

Note: Gas must be resold in order for a piping system to be a "master meter" system.

Appendix B

Types of Small Gas Piping Systems in Washington

With the scope of the study defined in accordance with Section 2 of the report, the potential types of small gas piping systems are provided in the following table.

TYPES OF SMALL GAS PIPING SYSTEMS IN WASHINGTON						
Item	**Description**	**Master Meter (Y / N)**	**Federal Regulations Apply (Y / N)**	**State Rules Apply (Y / N)**	**Industry Codes Apply to O&M (Y / N)**	**Comments**
1	Gathering lines outside of jurisdictional locations	N / A	N / A	N / A	N / A	Currently there are no production facilities in Washington.
2	“Free gas” lines from natural gas production facilities	N / A	N / A	N / A	N / A	Currently there are no production facilities in Washington.
3	Propane distribution systems	See note (1) below	See note (1) below	See note (1) below	N	Propane distribution systems are generally not “master meters.” See note below.

TYPES OF SMALL GAS PIPING SYSTEMS IN WASHINGTON (Continued)							
Item	**Description**		**Master Meter (Y / N)**	**Federal Regulations Apply (Y / N)**	**State Rules Apply (Y / N)**	**Industry Codes Apply to O&M (Y / N)**	**Comments**
4	Publicly-owned master meter systems (See note (2) below)	(a) Colleges and universities	Y	Y	N	N	Most colleges and universities resale gas to food service companies. They may also resale gas to tenants in on-campus apartment units.
		(b) Municipal Housing	Y	Y	N	N	These facilities resale gas to tenants.
		(c) Fairgrounds	Y	Y	N	N	Fairgrounds resell gas to food service vendors.
		(d) Others	Y	Y	N	N	
5	Privately-owned master meter systems (See note (2) below)	(a) Apartment complexes	Y	Y	Y	N	These facilities resale gas to tenants.
		(b) Mobile home parks	Y	Y	Y	N	These facilities resale gas to tenants.
		(c) Industrial	Y	Y	Y	N	These facilities have resale of gas to tenants (e.g., food service companies, other industrial users), the piping systems may be extensive, the piping may be under pavement or hard-packed surfaces causing leaking gas to migrate, and leaks could affect large numbers of people.
		(d) Amusement parks	Y	Y	Y	N	These facilities may resell gas to food service vendors.
		(d) Others	Y	Y	Y	N	

TYPES OF SMALL GAS PIPING SYSTEMS IN WASHINGTON (Continued)						
Item	**Description**	**Master Meter (Y / N)**	**Federal Regulations Apply (Y / N)**	**State Rules Apply (Y / N)**	**Industry Codes Apply to O&M (Y / N)**	**Comments**
6	Publicly-owned small gas piping systems other than master meters (e.g., prisons, schools with multiple buildings, publicly-owned hospital complexes)	N	N	N	N	
7	Commercial small gas piping systems other than master meters (e.g., hospital complexes, greenhouse complexes, nursing home facilities.)	N	N	N	N	
8	Apartment complex small gas piping systems other than master meters	N	N	N	N	
9	Industrial small gas piping systems other than master meters (e.g., large industrial facilities with multiple buildings)	N	N	N	N	These facilities have no resale of gas to other entities (e.g., food service company). However, the piping systems may be extensive, the piping may be under pavement or hard-packed surfaces causing leaking gas to migrate, and leaks could affect large numbers of people.

TYPES OF SMALL GAS PIPING SYSTEMS IN WASHINGTON (Continued)						
Item	**Description**	**Master Meter (Y / N)**	**Federal Regulations Apply (Y / N)**	**State Rules Apply (Y / N)**	**Industry Codes Apply to O&M (Y / N)**	**Comments**
10	Landfill gas piping systems	N / A	N / A	N / A	N / A	Currently there are no landfill gas piping systems in Washington, other than landfill gas collection systems. Generally, landfill gas piping systems become jurisdictional to the 49 CFR Part 192 regulations when gas is transported off site.

(1) The regulations in 49 CFR Part 192 do not apply to any pipeline system that transports only petroleum gas or petroleum gas/air mixtures to:
   (a) Fewer than 10 customers, if no portion of the system is located in a public place; or
   (b) A single customer, if the system is located entirely on the customer's premises (no matter if a portion of the system is located in a public place.)

If a propane distribution system is a master meter, then Federal regulations and State rules apply.
If a propane distribution system is not a master meter, then Federal regulations and State rules do not apply.

Note that a propane distribution system that serves fewer than 10 customers is jurisdictional if any part of the system is in a "public place." From paragraph (b) it is clear that a "public place" can exist on private property.

(2) The UTC believes it does not have the statutory authority to enforce master meter requirements on publicly-owned institutions. However, it is proposing legislation for the 2007 session that will eliminate the distinction between publicly-owned and privately-owned master meters.